NATURAL RESOURCES CONSERVATION SERVICE
Wyoming
CONSTRUCTION SPECIFICATIONS
FOR
PIPELINE

_____ (Owner/Operator)

_____ (Project Title)

GENERAL

Installation shall be in accordance with an approved design and plan. Details of construction shown on the drawings but not included herein shall be considered as part of these specifications. Construction activities shall be in accordance with applicable OSHA regulations.

INSTALLATION

Below Ground.

The pipe trench shall be excavated at the required location and depth as shown on the drawings and/or staked in the field. Bottom of the trench shall be reasonably smooth so that pipe will be properly supported.

Trenches for pipelines shall be free of rocks and other sharp edged materials. Plastic pipe shall be placed in a "snake" like position. Semi-rigid pipe may require expansion joint couplers.

Plastic pipelines may be placed by "plow-in" equipment where soils are suitable and rocks and boulders will not be detrimental to the pipe.

Pipelines shall be placed so they are protected against hazards imposed by traffic, farm operations, freezing temperatures or soil cracking.

Pipelines shall have a minimum cover of 18 inches. Other means of protection must be provided where the depth required for protection is impractical due to shallow soils over rock or for other reasons.

To minimize thermal stresses, installation should be planned to avoid exposing pipe to high temperatures prior to backfilling.

Above Ground.

When above ground installation is required because of shallow soils, rock, or other reasons, the pipe and installation shall meet the requirements listed in MATERIALS, Above Ground.

Piping shall be joined in accordance with the manufacturers recommendations for the particular pipe to be installed. Piping can be joined either mechanically or thermally. The preferred method is to use butt fusion welding. Metal insert fittings shall be used for all clamp and band type fittings to prevent pipe collapse. The inserts shall be galvanized steel, brass, stainless steel or plastic meeting ASTM D 2609 requirements. Double banding or double clamping with the heads offset 90 to 180 degrees shall be used for all insert fittings. Pipe ends can be heated to ease the installations of fittings. The ends shall be heated either with hot water or a hot air gun. Avoid excessive heating (above 240°F) or open flame contact with the pipe. All damaged pipe ends shall be removed before joining. The pipe shall be allowed to cool before the clamps or bands are installed.

The pipe shall be restrained in areas where pipe movement from thermal expansion is likely to cause damage to the pipe itself from moving up against existing structures or rock outcrops, down steep slopes, or onto a traffic right-of-way. When the pipe is to be connected to a trough, it shall be anchored to the ground near the trough. Anchors may be earth berms or embankment, pipe burial, or concrete or timber

blocks. Location and details of anchorage shall be as shown on the construction drawings.

MATERIALS

Below Ground.

Pipe shall be of the type, size and pressure rating shown on the drawings and shall meet the requirements of the appropriate material specifications.
Steel pipe and fittings shall be galvanized and meet the requirements of AWWA Specification C-200.
Plastic pipe shall comply with ASTM Specifications D 1527 or D 2282 for AcrylonitrileButadiene-Styrene (ABS); D 2104, D 2239, D 2447, D 2737 or D 3035 for Polyethlene (PE); D 1785, D 2241, D 2672 or D 2740 for Polyvinyl Chloride (PVC); and D 2513 for Thermoplastic Gas Pressure Pipe as appropriate. The pressure rating of fittings shall meet or exceed the strength requirements of the pipe. All fittings shall be of material that is recommended for use with the type of pipe that is specified. Plastic pressure pipe fittings shall conform to one of the following ASTM specifications as appropriate: D 2464, D 2466, D 2467, D 2468, D 2609, D 2683, D 3139, and D 3261.
Solvents for solvent-welded plastic pipe joints shall conform to one of the following ASTM specifications as appropriate: D 2235, D 2564, or D 2855. Rubber joints for pipe joints shall conform to ASTM F 477, Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
Pipelines to convey water that may be used for human consumption shall meet the requirements of the State Health and Welfare Department for material and installation, and plastic pipe shall be marked with NSF approval.

Above Ground.

The pipe material used shall be PE 3408 as per ASTM D 3350 and the pipe shall be manufactured in accordance with ASTM D 2239 Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Controlled Inside Diameter or, ASTM D 3035 Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Controlled Outside Diameter. The pipe shall be Class C Polyethylene pipe compound as described in ASTM D 2239 or D 3035.

METAL PROTECTION

Whenever steel tees, ells, or risers are used, they shall be adequately protected from corrosion by wrapping with plastic tape, galvanizing, or other approved corrosion preventatives. Clamps and steel fittings may either be stainless steel or steel properly protected from corrosion.

APPURTENANCES

Pipeline appurtenances shall be of the type, size, pressure class and material as shown on the drawings.

TESTING

Before backfilling the pipe shall be filled with water and at design working head or a minimum-testing head of 10 feet, whichever is greater. All leaks shall be repaired and test repeated before backfilling begins.
Plowed in pipelines will be pressure tested at the working pressure for 2 hours. The allowable leakage shall not be greater than one gallon per diameter inch per mile. Should the test exceed this rate, the defect shall be repaired until retest show that the leakage is within the allowable limits.

BACKFILLING

All backfilling shall be completed before the line is placed in service.
The initial backfill shall be of selected materials, free from rocks or other sharp edged material that would damage the pipe. The completed trench backfill shall be mounded for settlement. Backfill of plastic pipe should be done after the pipe reaches the same temperature as the water or soil. This can be done by filling with water or by leaving the trench open overnight before begins.
Deformation or displacement of the pipe must not occur during backfilling.

EROSION CONTROL

Disturbed areas shall be treated as listed in ADDITIONAL SPECIFICATIONS to prevent erosion and re-establish protective cover.

ADDITIONAL SPECIFICATIONS